400W Series

Instructions for Continued Airworthiness

Bell 206B

Reg. No._____ S/N_____

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Garmin International, Inc.
1200 E. 151st Street
Olathe, Kansas 66062 USA

Record of Revision

Rev.	Date	Description of Change
1	7/16/10	Initial Release
2	8/11/10	Updated ref. doc. revisions in section 2.1, revised part number and weight of item 2 in table 2.2.1.

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1. INTRODUCTION

1.1 Purpose

This document is designed for use by the installing agency of the Garmin Model 400W series GPS/WAAS Nav/Com as Instructions for Continued Airworthiness in response to Title 14 CFR Part 27.1529, Part 27 Appendix A. This ICA includes information required by the operator to adequately maintain the Garmin 400W unit installed.

1.2 Scope

This document identifies the Instruction for Continued Airworthiness for the modification of the rotorcraft for installation of the Garmin Models 400W series GPS/WAAS Nav/Com unit installed.

1.3 Document Control

This document shall be released, archived, and controlled in accordance with the Garmin document control system. When this document is revised, refer to Section 2.15 for information on how to gain FAA acceptance or approval and how to notify customers of changes.

1.4 Permission to Use Certain Documents

Permission is granted to any corporation or person applying for approval of a Garmin Model 400W series to use and reference appropriate STC documents to accomplish the Instructions for Continued Airworthiness and show compliance with STC engineering data. This permission does not construe suitability of the documents. It is the responsibility of the applicant to determine the suitability of the documents for the ICA.

1.5 Definitions

The following terminology is used within this document:

1) **ACO:** Aircraft Certification Office
2) **AEG:** Aircraft Evaluation Group
3) **CFR:** Code of Federal Regulations
4) **FAA:** Federal Aviation Administration
5) **ICA:** Instructions for Continued Airworthiness
6) **PMI:** Principle Maintenance Inspector
7) **STC:** Supplemental Type Certificate

2. INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

2.1 Introduction

Content, Scope, Purpose and Arrangement:	This document identifies the Instructions for Continued Airworthiness for the modification of the rotorcraft by installation of the Garmin 400W Series GPS/WAAS Nav/Com units.
Applicability:	Applies to Bell models 206B rotorcraft altered by installation of the Garmin 400W Series GPS/WAAS Nav/Com units.
Definition of Abbreviations:	See Section 1.5
Precautions:	None
Units of measurement:	None
Referenced publications:	Garmin 005-00610-03 Rev. 1 *"Equipment List 400W/500W Series Installation Bell 206B STC"* or later FAA Approved Revisions Garmin 190-01226-02 Rev. 1 *"400W Series Rotorcraft STC Installation Manual"* or later FAA Approved Revisions
Additional Maintenance Data:	Garmin 190-01226-07 Rev. 3 *"400W/500W Series Installation Bell 206B"* or later FAA Approved Revisions Garmin 005-W0223-00 Rev. 3 *"400W/500W Series Harness Assembly Bell 206B"* or later FAA Approved Revisions
Retention:	This document, or the information contained within, will be included in the rotorcraft's permanent records.

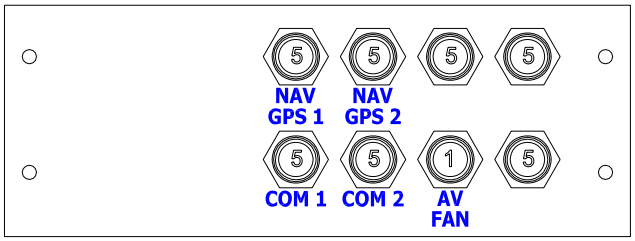
2.2 Description of Alteration

This STC upgrades existing avionics for the Bell 206B rotorcraft as summarized below.

The Garmin Model 400W Series GPS/WAAS Nav/Com unit is a 6 ¼ inch wide unit mounted in the center pedestal of the Bell 206B. The 400W Series units combine a large number of easily accessible controls to use the color multi-function display, Nav and Com transceiver, GPS/WAAS navigator in a single unit. A GPS/WAAS antenna is installed on the top of the Bell 206B forward engine cowl. The 400W Series unit interfaces to the Garmin G500H system GDU 620 PFD/MFD for display of navigation information, and optional cyclic stick switches for remote control of COM and HTAWS functions. A monitored avionics cooling fan is installed in the center pedestal with a fan fail fault annunciation located in the existing Bell 206B annunciator panel.

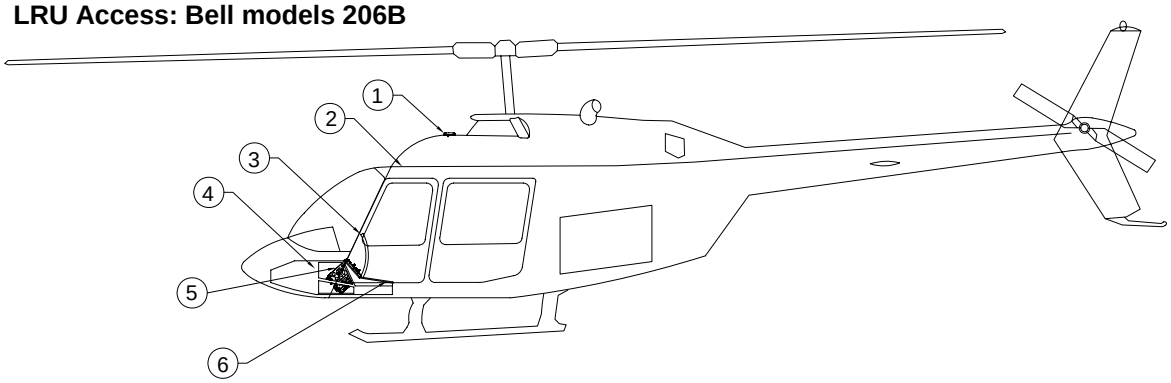
Rotorcraft modified under this STC are restricted to VFR only, including rotorcraft that may not have previously been restricted to VFR. To clarify this operation limitation, a placard with the text, "APPROVED FOR DAY/NIGHT VFR" is required to be in the pilot's view.

The installed equipment is connected to an avionics bus that receives power as soon as the battery and avionics master switches are turned on. Circuit breakers are installed on a lower circuit breaker panel located in the DART console as shown below. Note: dual navigator system installation as shown.



The installed 400W Series equipment can be accessed as described below:

LRU Access: Bell models 206B



1. GA 36/37 ANTENNA: FS80.0 remove by extracting the four mounting screws in the body of the antenna. Note: location may vary slightly depending whether or not a dual navigator system is installed.
2. OVERHEAD CIRCUIT BREAKER PANEL: FS61.0, WL 71.0 Access or remove by extracting the mounting screws along the side of the circuit breaker panel.
3. CYCLIC CONTROL GRIPS: remove by extracting mounting screw at bottom of grip.
4. COOLING FAN: FS28.5 Access by removing copilot side (LH) cover plate. Remove by extracting three mounting screws and disconnecting connector.

5. 400W SERIES UNIT: FS39.7 Access or remove by using a 3/32 allen head screwdriver to loosen the locking mechanism through the access hole on the front of the unit. Note: location may vary slightly depending whether or not a dual navigator system is installed.
6. LOWER CIRCUIT BREAKER PANEL: FS60.8, WL26.5 Access or remove by extracting the four mounting ¼ turn fasteners along the sides of the circuit breaker panel.

2.2.1 Weight and Balance Information

ITEM	DESCRIPTION	PART NUMBER	WEIGHT [LB]	Moment ARM [IN]	
				LONGITUDINAL	LATERAL
1	GPS 400W (Unit Only)	011-01057-XX	4.0	39.7	0.1
	GPS 400W (Installed with rack and back plate)		5.0		
	GNC 420W (Unit Only)	011-01058-XX	4.5		
	GNC 420W (Installed with rack and back plate)		5.5		
	GNC 420AW (Unit Only)	011-01059-XX	4.5		
	GNC 420AW (Installed with rack and back plate)		5.5		
	GNS 430W (Unit Only)	011-01060-XX	5.1		
	GNS 430W (Installed with rack and back plate)		6.2		
	GNS 430AW (Unit Only)	011-01061-XX	5.1		
	GNS 430AW (Installed with rack and back plate)		6.2		
2	GCF 3XX 3-Port Cooling Fan (Unit Only)	013-00103-00	0.70	28.5	-3.2
3	GA 36 GPS/WAAS Antenna (Unit Only)	013-00244-00	0.47	80.0	0.0
	GA 37 GPS/WAAS + XM Antenna (Unit Only)	013-00245-00	0.50		

[1] A rotorcraft weight and balance is required after installation of the 400W Series Unit. Refer to the 400W Rotorcraft STC Installation Manual listed in paragraph 2.1 of this document, for additional information, including overall size and center of gravity location of all LRUs.

[2] The longitudinal arm is measured in terms of the fuselage station (FS) number.

[3] The lateral arm is measured in terms of the butt line (BL). The centerline of the helicopter is BL0.00. The moment arms to the left side (looking forward) are negative (-) and the moment arms to the right side are positive (+).

[4] Location of the 400W Series unit and GPS antenna may vary slightly depending whether or not a dual navigator system is installed.

2.3 Control, Operating Information

See the Pilot's Guides or the 400W Rotorcraft STC Installation Manual for system operation and self-test information. The 400W Rotorcraft STC Installation Manual is listed under the reference documentation in paragraph 2.1 of this document, and the Pilot's Guides are listed in the related documents section of the 400W Rotorcraft STC Installation Manual.

2.4 Servicing Information

None. In the event of system failure, troubleshoot the 400W Series unit in accordance with Section 2.6.

2.5 Periodic Maintenance Instructions

The 400W Series units are designed to detect internal failure. A thorough self-test is executed automatically upon application of power to the units, and built-in test is continuously executed. Detected errors are indicated on the equipment via failure annunciations.

Maintenance of the components installed by this STC is on condition, except as noted in the following table.

Table 1 Periodic Maintenance Inspections

Item	Interval	Description/Procedure
400W Series Unit	12 Months	Conduct a visual inspection (look for signs of wear, deterioration, or damage to wires, backshells, or connectors) of the 400W Series unit and wiring harnesses to ensure installation integrity: 1. Inspect the unit for security of attachment. 2. Inspect all knobs and buttons for legibility. 3. Inspect condition of wiring, routing and attachment/clamping. 4. Inspect related antennas for proper sealing and attachment. 5. Inspect integrity of shield terminations. 6. Inspect for signs of corrosion on equipment, racks and it's backplates and rack mounting.
400W Series Mounting Rack	12 Months	Inspect the mounting rack for any signs of excessive wear, corrosion, or damage. Check mounting rack corners for cracks. Check integrity of connector plate attachment to the back of mounting rack.
400W Series Mounting Rack	Every 2000 flight hours or ten (10) years, whichever is first	Perform an electrical bonding test: 1. Remove 400W Series unit from mounting rack 2. Measure the resistance between the mounting rack and a nearby exposed portion of aircraft metallic structure and verify it is less than 10 milliohms. Reinstall the 400W Series unit in the mounting rack
Avionics Cooling Fan	12 Months	Conduct a visual inspection (look for signs of wear, deterioration, or damage to wire harness and connector) of the cooling fan to ensure installation integrity. Inspect for signs of corrosion on equipment and mounting brackets.

2.5.1 Cleaning the Front Panel

The front bezel, keypad, and display can be cleaned with a soft cotton cloth dampened with clean water. DO NOT use any chemical-cleaning agents. Care should be taken to avoid scratching the surface of the display.

2.5.2 Display Backlight

The display backlight lamp is rated by the manufacturer as having a usable life of 20,000 hours. This life may be more or less than the rated time depending on the operating conditions of the 400W Series unit. Over time, the backlight lamp may dim and the display may not perform as well in direct sunlight conditions. The user must determine by observation when the display brightness is not suitable for its intended use. Contact the Garmin factory repair station when the backlight lamp requires service.

2.5.3 Battery Replacement

The 400W series has an internal keep-alive battery that will last about 10 years. The battery is used for GPS system information. Regular planned replacement is not necessary. The 400W series will display a 'low battery' message when replacement is required. Once the low battery message is displayed, the battery should be replaced within 1 to 2 months.

If the battery is not replaced and becomes totally discharged, the 400W Series unit will remain fully operational, but the GPS signal acquisition time may be increased. This acquisition time can be reduced by entering a new seed position each time the unit is powered on. There is no loss of function or accuracy of the 400W Series unit with a dead battery.

The battery must be replaced by the Garmin factory repair station or factory authorized repair station.

2.6 Troubleshooting Information

If error indications are displayed on the 400W series unit, consult the Troubleshooting section contained below:

Table 2 Troubleshooting Guide

Problem	Possible Cause	Solution
The 400W Series unit does not power on.	• The unit is not getting power to the main connector P4001.	• Make sure power is connected to the main 78-pin connector P4001, pins 19 and 20 and ground to P4001, pins 77 and 78. Check circuit breakers and main avionics switch.
The 400W Series unit does not compute a position.	• Not receiving signals.	• Check the GPS antenna connections. Make sure the aircraft is clear of hangars, buildings, trees, etc.
		• Wait 20 minutes for unit to complete cycle.

Problem	Possible Cause	Solution
GPS signal levels drop when avionics are turned on.	• Noise interference from other avionics.	• Turn all avionics off, then turn on each piece one at a time to isolate the source of the interference. Route GPS cable and locate GPS antenna away from sources of interference.
The GPS signal levels are very low.	• Improper antenna installation or coax routing.	• Check GPS antenna installation, connections, and cable routing. The GPS antenna must be mounted on the top of the aircraft.
	• Antenna shaded from satellites.	• Make sure the aircraft is clear of hangars, buildings, trees, etc.
	• RF interference at 1575.42 MHz from VHF COM.	• Move GPS antenna further from the COM antenna. Add a 1575.42 MHz notch filter in COM coax. Fix or replace the COM. Disconnect the ELT antenna coax to check for possible re-radiation.
The 400W Series unit does not transmit.	• The PTT input is not being pulled low.	• Check that the PTT (mic key) input is pulled low for transmit.
	• No transmit power to the COM.	• Make sure power input is connected to the COM 25-pin connector P4002 11 and 12 and ground to P4002 21 and 22.
	• The input voltage is too low.	• Increase input supply voltage to >12VDC. (>24VDC for 430AW models)
The sidetone level is too low or too high.	• Wrong type of headsets, or level needs adjustment.	• If necessary, adjust the sidetone level. Sidetone adjustment is found on the COM Setup page.
OBS Resolver won't calibrate.	• Incompatible resolver or improper connection.	• Check the resolver specifications and wiring.
OBS indication on 400W Series unit does not agree with OBS setting.	• 400W Series unit resolver input not calibrated correctly. • Resolver has not been calibrated.	• Check wiring and calibration.
400W Series unit is not receiving heading from compass system (ARINC 429 heading input used)	• ARINC 429 input port speed not correct	• Check ARINC 429 input port speed setting for port that device is connected to and verify that the speed is correct for that device.
	• Wiring connections are incorrect.	• Check wiring.
Autopilot is not getting GPSS/Roll Steering data from the 400W Series	• 400W Series unit does not have a position or flight plan entered.	• Acquire GPS position and enter a flight plan.
	• 400W Series unit ARINC 429 output not configured correctly.	• Check ARINC 429 output port setting for port that autopilot is connected to.

Problem	Possible Cause	Solution
unit (ARINC 429 Roll Steering used)	• ARINC 429 output port speed not correct.	• Check ARINC 429 output port speed setting for port that autopilot is connected to and verify that the speed is correct for autopilot.
	• Wiring connections are incorrect.	• Check wiring. Must be connected to main GPS 429 output.
	• Certain autopilots require groundspeed for GPSS to be enabled.	• Ensure that groundspeed is provided if required by the autopilot.
RMI pointer does not indicate correctly	• Desired RMI source has not been selected.	• Check the OBI source selection on the Main CDI/OBS Config page.
	• Wiring connections are incorrect.	• Check wiring.
Tuning data not updating DME	• Incorrect configuration.	• Check the DME Channel Mode on the VOR/LOC/GS CDI page.
	• Wiring connections are incorrect.	• Check wiring.
ARINC 429 device is not receiving data from the 400W/420W/430W.	• 400W Series unit ARINC 429 output not configured correctly.	• Check ARINC 429 output port setting for port that device is connected to.
	• ARINC 429 input port speed not correct	• Check ARINC 429 input port speed setting for port that device is connected to and verify that the speed is correct for that device.
	• Wiring connections are incorrect.	• Check wiring.
RS-232 device is not communicating with the 400W/420W/430W.	• 400W Series unit RS-232 port not configured correctly.	• Check RS-232 port setting for port that device is connected to.
	• Improper setup on the remote device.	• Verify the configuration of the other device.
	• Device not compatible, or improper connection.	• Verify 400W Series unit RX is connected to remote device TX and 400W Series unit TX is connected to remote device Rx.
	• Multiple TX lines connected together.	• Verify that there is only one TX source per RX port.
	• Wiring connections are incorrect.	• Check wiring.

Problem	Possible Cause	Solution
CDI scaling on EFS 40/50 is not correct.	• On EFS 40/50, FMS #1/#2 configuration is not set to “KLN 90-GPS”.	• Reconfigure EFS 40/50 for KLN 90-GPS” on FMS #1/#2 inputs as appropriate.

2.6.1 400W Series Alerts

The 400W Series will display a number of alerts. These are listed in the following table.

Table 3. 400W Series Alert Troubleshooting Guide

Alert Text	Possible Cause	Solution
Airport terrain database integrity error	• The 400W Series unit has detected a problem with a database on the Terrain data card. The message "<database name> database integrity error" indicates the data base in error.	• The data is not usable, try reloading the information onto the card. If that does not solve the problem replace the card.
Aviation database integrity error	• The 400W Series unit has detected a problem with a database on the NavData® card. The message "<database name> database integrity error" indicates the data base in error.	• The data is not usable, try reloading the information onto the card. If that does not solve the problem replace the card.
Basemap database integrity error	• The 400W Series unit has detected a failure in the built-in basemap (land data) database. Land data does not appear on the Map Page. Other unit functions continue to work normally.	• Reload the Basemap database
Boot block verify failed - Return unit for repair	• System integrity testing has determined that the boot block has become corrupted.	• Contact Garmin technical support.
CDI key stuck	• The CDI key is stuck in the enabled (or "pressed") state. Try pressing the CDI key again to cycle its operation.	• Contact Garmin technical support.
CDI key disabled	• "Ignore CDI key" has been selected on the MAIN CDI/OBS CONFIG page.	• Go to the MAIN CDI/OBS CONFIG page and deselect "Ignore CDI key"
Check unit cooling	• The 400W Series unit has detected excessive display backlighting temperature. The backlighting has been automatically dimmed to reduce the temperature.	• Check for adequate ventilation or check cooling airflow.
COM has failed 420W and 430W only)	• The unit has detected a failure in its communications transceiver.	• Contact Garmin technical support.

Alert Text	Possible Cause	Solution
COM is not responding 420W and 430W only)	• Internal system-to-system communication between the main processor and the COM transceiver has failed. Operational status of the COM transceiver is unknown.	• Contact Garmin technical support. If the COM board is still working, it will automatically tune to 121.500 MHz. Transmit and receive functions may still operate regardless of the displayed frequency.
COM needs service 420W and 430W only)	• The unit has detected a failure in its communications transceiver. The COM transceiver may still be usable.	• Contact Garmin technical support
COM push-to-talk key stuck 420W and 430W only)	• The external push-to-talk (PTT) switch is stuck in the enabled (or “pressed”) state.	• Try pressing the PTT switch again to cycle its operation.
	• Wiring is incorrect.	• Check Wiring
COM remote transfer key is stuck (420W and 430W only)	• The remote COM transfer switch is stuck in the enabled (or “pressed”) state.	• Try pressing the switch again to cycle its operation.
		• Verify the wiring is correct.
		• If the message persists, contact Garmin technical support.
COM transfer key stuck 420W and 430W only)	• The COM flip-flop key is stuck in the enabled (or “pressed”) state.	• Try pressing the switch again to cycle its operation.
		• If the message persists, contact Garmin technical support.
COM transmitter power has been reduced 420W and 430W only)	• The unit has detected excessive unit temperature. The COM transceiver transmit power has been automatically reduced to compensate for the condition.	• Check for adequate ventilation or check cooling airflow. Refer to Section 2.7 of the Installation Manual.
	• Insufficient voltage level	• Check the input voltage
Configuration error - Config service req’d	• The configuration information has been lost or corrupted.	• Reconfigure the unit
Data transfer cancelled (crossfill is busy)	• An attempt to transfer flight plan data during a unit-to-unit crossfill was cancelled.	• The host unit is busy. Wait until any previous crossfill operation is complete, before reattempting the transfer.
Data transfer cancelled (data invalid)	• An attempt to transfer a single user waypoint during a unit-to-unit crossfill was cancelled. No waypoint was specified on the Crossfill Page.	• Select a user waypoint and re-attempt the transfer.
Data transfer cancelled (version mismatch)	• An attempt to transfer data during a unit-to-unit crossfill was cancelled. The database versions of the two 400W-series unit are not identical.	• If necessary, update the database(s) so they match.

Alert Text	Possible Cause	Solution
Data transfer error, please re-transmit	• An error was detected during unit-to-unit crossfill of user data (user waypoints and/or flight plans).	• The data transfer should be re-attempted.
Display backlight failure	• The 400W Series unit has detected a failure in the display backlighting.	• Contact Garmin technical support.
Do not use for navigation	• The 400W Series unit is in Demo Mode and must not be used for actual navigation.	• Check that the DEMO MODE SELECT pin, P5001 Pin 75, is not connected.
G/S has failed 420W and 430W only)	• The unit has detected a failure in its glideslope receiver.	• Contact Garmin technical support.
G/S is not responding 420W and 430W only)	• Internal system-to-system communication between the main processor and the glideslope receiver has failed. Operational status of the glideslope receiver is unknown.	• Contact Garmin technical support.
G/S needs service 420W and 430W only)	• The unit has detected a failure in its glideslope receiver. The glideslope receiver may still be usable.	• Contact Garmin technical support.
GAD configuration required	• The GAD 42 Interface Adapter has lost the configuration information stored in its internal memory. Any mechanical indicators connected to your 400W-series unit are unusable.	• Reconfigure the GAD 42 unit. Refer to the GAD 42 Installation Manual (P/N 190-00159-00)
GAD needs service	• The 400W Series unit has detected a failure in the GAD 42 interface adapter. Any mechanical indicators connected to your unit are unusable.	• Refer to Section 5.2.3 of the GAD Installation Manual (P/N 190-00159-00)
GDL 69 is not responding	• No data is being received from the GDL 69.	• Check for proper configuration • Check wiring • Contact Garmin technical support.
GPS is not responding –	• GPS antenna cable is shorted	• Verify that the center conductor is not shorted to the braid in the coaxial cable.

Alert Text	Possible Cause	Solution
check GPS antenna (main software version 3.20 and later).	• Internal system-to-system communication between the main processor and the GPS receiver has failed. Operational status of the GPS receiver is unknown.	• Contact Garmin technical support.
GPS needs service	• The 400W Series unit has detected a failure in its GPS receiver.	• Contact Garmin technical support.
Large magnetic variance	• A valid value of magnetic variation is not available for this location. • Verify all course angles	• Contact Garmin technical support.
Loss of integrity — cross-check NAV	• Improper antenna installation or coax routing	• Check GPS antenna installation, connections, and cable routing. The GPS antenna must be mounted on the top of the aircraft.
	• Antenna shaded from satellites	• Make sure the aircraft is clear of hangars, buildings, trees, etc.
	• RF interference at 1575.42 MHz from VHF COM.	• Move GPS antenna further from the COM antenna. Add a 1575.42 MHz notch filter in COM coax. Fix or replace the COM. Disconnect the ELT antenna coax to check for possible re-radiation.
Low Battery - Unit Needs Service	• Time data may have been lost due to a memory battery failure.	• Replace the battery (refer to Section 8.4).
MAIN processor requires service	• The 400W Series unit has detected a failure in the main system processor.	• Contact Garmin technical support.
No altitude input is being received	• No altitude data is being received from RS-232 (Serializer: Icarus, Rosetta or Shadin) or grey code inputs.	• Refer to Table 6-1 “RS-232 device is not communicating with the GPS 400W/GNS430W”.
No basemap data available	• The 400W Series unit has detected a failure in the built-in basemap (land data) memory. Land data does not appear on the Map Page. Other unit functions continue to work normally.	• Contact Garmin technical support to reload the basemap data.
Not receiving input data on 429 Channel #1 or #2	• No data has been received on the ARINC 429 channel #1 connection for a period exceeding five seconds.	• Refer to Table 6-1 “ARINC 429 device is not receiving data from the GPS 400W/GNC420W/GNS430W”

Alert Text	Possible Cause	Solution
Not receiving input data on 232 Channel #(1 through 5)	• No data has been received on one (or more) of the RS-232 channel connections for a period exceeding ten seconds.	• Refer to Table 6-1 “RS-232 device is not communicating with the GPS400W/GNC420W/GNS430 W”
Not receiving traffic data	• No traffic data is being received.	• Check for proper configuration
		• Check the wiring
		• Contact Garmin technical support.
OBS key stuck	• The OBS key is stuck in the enabled (or pressed) state. Try pressing the OBS key again to cycle its operation.	• Contact Garmin technical support.
OBS not available	• No destination waypoint has been selected.	• Select a waypoint
	• The GPS receiver cannot currently determine its position.	• Refer to **Error! Reference source not found.**“The 400W Series unit does not compute a position.”
Obstacle database integrity error	• The 400W Series unit has detected a problem with a database on the Terrain data card.	• The data is not usable. Try reloading the information onto the card. If that does not solve the problem replace the card.
RAIM position warning	• Although sufficient GPS satellite coverage may exist, Receiver Autonomous Integrity Monitoring (RAIM) has determined the information from one or more GPS satellites may be in error.	• Wait for GPS satellite geometry to improve.
Searching the sky	• The 400W Series unit is searching the sky for GPS satellites.	• Wait 20 minutes for unit to complete cycle or until the current position is located.
Stored data was lost	• All user waypoints, flight plans and system settings have been lost due to a memory battery failure or system reset.	• If system was not reset replace the battery.
TERRAIN configuration conflict	• The current Terrain configuration is not supported by the hardware.	• Reconfigure the unit.
TERRAIN configuration has changed	• The unit’s terrain settings have changed since it was last turned on in normal mode.	• Reconfigure TERRAIN settings
		• Contact Garmin technical support
Terrain database integrity error	• The 400W Series unit has detected a problem with a database on the Terrain data card.	• Reloading the information onto the card.
		• Replace the card.

Alert Text	Possible Cause	Solution
TERRAIN has failed	• The unit has detected a failure in the terrain system.	• Ensure that Terrain database is inserted in the right most card slot. • Reload the TERRAIN database. • Contact Garmin technical support.
Traffic device has failed	• The 400W Series unit cannot communicate with the traffic system and/or the traffic system is reporting a system failure.	• Check for proper configuration • Check for correct wiring • Refer to the Traffic system installation manual.
Traffic device needs service	• The traffic device is reporting a system failure.	• Refer to the Traffic system installation manual.
User card format unknown	• A data card has been inserted, but the format of the card is not recognized.	• Reload the information onto the card. If that does not solve the problem replace the card.
VLOC has failed (420W and 430W only)	• The GNC 420/GNS 430W has detected a failure in its VLOC receiver.	• Contact Garmin technical support.
VLOC is not responding (420W and 430W only)	• Internal system-to-system communication between the main processor and the VLOC receiver has failed. Operational status of the VLOC receiver is unknown.	• Contact Garmin technical support.
VLOC needs service (420W and 430W only)	• The unit has detected a failure in its VLOC receiver. The VLOC receiver may still be usable.	• Contact Garmin technical support.
VLOC remote transfer key is stuck (420W and 430W only)	• The remote VLOC transfer switch is stuck in the enabled (or “pressed”) state.	• Try pressing the switch again to cycle its operation. • Contact Garmin technical support.
VLOC transfer key stuck (420W and 430W only)	• The VLOC flip-flop key is stuck in the enabled (or “pressed”) state.	• Try pressing the VLOC flip-flop key again to cycle its operation. • Contact Garmin technical support.

Alert Text	Possible Cause	Solution
WX-500 device has failed	• The 400W- Series unit cannot communicate with the WX-500.	• Check for proper configuration
	• The WX-500 is reporting a system failure.	• Check the wiring
		• Refer to the WX-500 installation manual for additional troubleshooting information.
WX-500 heading has failed	• The WX-500 is reporting invalid heading data.	• Check for proper configuration of WX-500
		• The failure may be within the WX-500 or other connected equipment.

2.7 Removal and Installation Information

If any work has been done on the rotorcraft that could affect the system wiring, antenna cable, or any interconnected equipment, verify the 400W Series unit power-up self-test sequence is successfully completed and no failure messages are annunciated.

Whenever removing or installing units, remove power from the LRU by removing rotorcraft power or opening the LRU circuit breaker.

2.7.1 400W Series Unit

2.7.1.1 Removal

1. Insert a 3/32-inch hex drive tool into the access hole at the bottom of the unit face.
2. Rotate the hex tool counterclockwise until the unit is forced out about 3/8 inches and can be freely pulled from the rack.

2.7.1.2 Installation

1. Slide the 400W unit in the rack straight in until it stops, about 1 inch short of the final position.
2. Insert the hex drive tool into the access hole at the bottom of the unit face.
3. Rotate the hex tool clockwise while pressing on the left side of the bezel until the unit is firmly seated in the rack.

NOTE

The installation configuration and user settings are stored internally in the 400W Series unit, and will be lost when the 400W Series is replaced with a new unit.

Original 400W Series unit is Reinstalled

If the original 400W Series is reinstalled, then no configuration is required.

New, Repaired or Exchange 400W Series is Installed

If the 400W Series unit is removed for repair and reinstalled, or if the 400W unit is removed and replaced with a different 400W Series unit, then verify the correct software versions are on the 400W Series unit as specified in the Equipment List 400W/500W Series Installation Bell 206B STC listed in paragraph 2.1 of this document. In addition, complete the 'Post Installation Configuration & Checkout Procedures' contained in the 400W Rotorcraft STC Installation Manual listed in paragraph 2.1 of this document to restore the proper installation configuration settings.

2.7.1.3 Return to Service

After removing and reinstalling the 400W Series unit per the instructions above, verify that the power-up self-test sequence is successfully completed and no failure messages are annunciated.

Note: There are no special handling requirements for the 400W Series units.

2.7.2 GA 36 GPS and GA 37 GPS/XM Antennas

2.7.2.1 Removal

1. Remove the screws from the outside of the rotorcraft.

2 Remove old sealant. Insert a 3/32-inch hex drive tool into the access hole at the bottom of the unit face.

3 Lift the antenna off the rotorcraft and detach the coax (from the outside). If a GA 37 antenna verify coax(s) are properly labeled with correct color band. Note: GPS coax is labeled with a blue band and XM cable with a yellow band.

2.7.2.2 Installation

For GA 36 or GA 37 GPS antenna installation, follow the installation procedures contained in the installation drawing listed in paragraph 2.1 of this document.

2.7.2.3 Return to Service

After removing and reinstalling the GPS antenna, verify the 400W Series unit power-up self-test sequence is successfully completed and no failure messages are annunciated. If the unit is unable to acquire satellites, move the rotorcraft away from obstructions which might be shading GPS reception. If the situation does not improve, check the GPS antenna installation.

2.7.3 Cooling Fan

2.7.3.1 Removal

1 Extract the screws from the copilot side (LH side) center console cover plate.

2 Remove copilot side (LH side) center console cover plate.

3 Disconnect cooling fan electrical connector located under cooling ports on fan.

4 Extract the three (3X) cooling fan mounting screws to remove cooling fan.

2.7.3.2 Installation

1 Install cooling fan using removed hardware.

2 Reconnect electrical connector to cooling fan.

3 Reinstall center consol cover plate using removed hardware, verifying silicone sponge foam used to seal cooling fan intake remains in place on center console cover plate and properly seals the fan intake to the louver installed on the center console cover plate.

2.7.3.3 Return to Service

After removing and reinstalling the cooling fan verify proper operation of the cooling fan. Apply power to the avionics, verify the cooling fan is operating and the FAN FAIL light on the annunciator panel is not illuminated.

2.8 Diagrams

Rotorcraft specific LRU locations and wire routing diagrams are contained in the 400W/500W Series Installation drawing Bell 206B, listed in Section 2.1 of this document Point to point wiring diagrams are in the Appendix of the 400W Rotorcraft STC Installation Manual. Refer to the GNS 400W Series Post-Installation Checkout Log retained in the rotorcraft permanent records for a list of the interfaced equipment and port configurations.

2.9 Special Inspection Requirements

2.9.1 Post-Lightning Strike Inspection

In the event of a suspected or actual lightning strike to the rotorcraft, the GA 36 or GA 37 GPS antenna installation shall be inspected to ensure that there is no structural damage around the areas where lightning may have attached. If there is visible sign of damage to the antenna then it must be replaced.

Verify that the 400W series unit receives and displays GPS satellite information normally.

2.9.1 Post-Hard Landing Inspection

In the event of a hard landing complete all the inspections specified in Table 1 Periodic Maintenance Inspections.

2.10 Application of Protective Treatments

None, N/A.

2.11 Data Relative to Structural Fasteners

Location (see Installation Drawing)	FASTENER TYPE AND TORQUE		
	6-32 Screw 12-15 inch-pounds	8-32 Screw 12-15 inch-pounds	10-32 Screw 22-25 inch-pounds
400W Unit Mounting Rack	X		
GPS Antenna			X
Cooling Fan	X	X	X

2.12 Special Tools

For electrical bonding testing, a milliohm meter is required.

2.13 Additional Instructions

None

2.14 Overhaul Period

The system does not require overhaul at a specific time period. Power on self-test and continuous BIT will monitor the health of the 400W Series unit. If the unit indicates an internal failure, the unit may be removed and replaced. See troubleshooting section 2.6 contained in this document.

2.15 ICA Revision and Distribution

To revise this ICA, a letter must be submitted to the ACO along with the revised ICA. The ACO will obtain AEG acceptance, and approve any revision to the Airworthiness Limitations in Section 3. After FAA acceptance/approval, Garmin will release the revised ICA for customer use, and provide any required notification of the revision.

The latest revision of this document will be available through any Garmin dealer or from Garmin customer assistance. A Garmin Service Bulletin, describing ICA revision, will be sent to dealers if revision is determined to be significant.

2.16 Assistance

FAA Flight Standards Inspectors or the certificate holder's PMI have the required resources to respond to questions regarding this ICA. In addition, the customer may refer questions regarding this equipment and its installation to the manufacturer, Garmin. Garmin customer assistance may be contacted during normal business hours via telephone 913-397-8200 or email from the Garmin web site at www.garmin.com.

2.17 Implementation and Record Keeping

Modification of an rotorcraft by this Supplemental Type Certificate obligates the rotorcraft operator to include the maintenance information provided by this document in the operator's rotorcraft maintenance manual and/or the operator's rotorcraft scheduled maintenance program.

3. AIRWORTHINESS LIMITATIONS

There are no additional Airworthiness Limitations as defined in 14 CFR § 27, Appendix A. A27.4 that result from this modification. The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.